Joint Distributed Engineering Plant (JDEP) Federation Event Planning Checklist

The following describes actions necessary to ensure JDEP Event success. Please ensure that all actions described and required in Step 1 have been completed fully before continuing to Step 2, ensure Step 2 has been completed fully before continuing to Step 3, etc.

STEP 1 – DEFINE FEDERATION OBJECTIVES

On completion of this step, a detailed, initial estimate of the federation objectives should be in hand. This should include a statement of the problem that is to be addressed by the simulation, a description of the experiments that will be performed on a simulation model and/or live systems, and identification of key aspects of the system that are relevant in the context of the stated objectives. Initial estimates of resources requirements (i.e. key personnel, difficult to acquire equipment) should also be stated at the completion of Step 1.

1.1 Identify Key Personnel and Organizations

1.1.1 Who is the federation sponsor?

1.1.2 Who is the federation user?

1.1.3 Which persons/organizations constitute the federation development team?

1.2 Define a Set of High-Level Objectives

1.2.1 What is the problem to be addressed by the federation?

1.2.2 What are the critical systems of interest?

1.2.3 Provide a high level description of those aspects of each critical system that are relevant to the problem.

1.2.4 Provide initial estimates of the system behaviors that must be represented in the federation.

1.2.5 What key events (e.g. system interactions, significant system states) need to be represented in the system models?

1.2.6 What output data must be collected from the federation?

1.2.7 Has the accreditation process been started yet?

1.3 Generate an Early Estimate of Required Resources

1.3.1 What are the funding sources for the federation?

1.3.2 Identify persons and/or organizations that are critical to federation development, execution, and analysis.

1.3.3 Identify long lead-time equipment and facilities that are critical to federation development, execution, and analysis.

1.3.4 Construct an estimated project time line.

1.4 Describe Non-Functional Federation Requirements. Consider the Following:

1.4.1 Repeatability

1.4.2 Portability

1.4.3 Availability

1.4.4 Other

1.5 Prepare the Required JDEP Configuration Management (CM) Documentation

1.5.1 Test Order (this action is necessary to reserve the JDEP lab for your event dates and times)

1.5.2 Appropriate pages of the "JDEP Node Collection Sheet"

1.5.3 Any System Change Requests (SCRs) created

1.5.4 Other

1.6 Event Lead Checklist - Schedule

Establish Schedule Milestones. At a minimum it needs to included dates for the following:

- ❑ Site Surveys (four months prior to Infrastructure Checkout)
- ❑ Equipment Purchases (four months prior to Infrastructure Checkout)
- ❑ Security Accreditation Milestones
  - o Submit Security Accreditation Package to DAA or DSS (3 months prior to Infrastructure Checkout)
  - o DAA submits IATO to AITS JPO (6 weeks prior to start of Infrastructure Checkout)

- o DAA received IATC from AITS JPO (3 weeks prior to start of Infrastructure Checkout)

- ❑ Equipment installation (3 weeks prior to Infrastructure Checkout)
- ❑ Network Configuration/Build Plan (prior to Infrastructure Checkout)
- ❑ Engineering/Integration Checkout (Infrastructure Checkout)
- ❑ Integration Testing (following Infrastructure Checkout)
- ❑ Event Execution (following Integration Testing)

1.7 Event Lead Checklist - Security

1.7.1 Lab Security Accreditation

- ❑ Instruct sites to start the accreditation process (all sites – minimum 8 weeks prior to start of Integration Testing)
  - o Identify DAA
  - o Obtain JITC Security Accreditation Guide
  - o Submit draft package

1.7.2 Security Memorandum of Agreement (MOA – minimum 12 weeks prior to start of Integration Testing)

- ❑ Test Director must identify Security MOA Requirements
  - o Determine if test event includes Contractor facilities
  - o If yes, determine if an existing MOA is in place
  - o If not, then initiate MOA process

1.8 Event Lead Checklist – JDEP Operations Center

Test Orders are used to reserve lab resources (personnel, equipment, and lab time)

- ❑ Complete and return Test Order to JDEP – Mr. Mike Otey
- ❑ Begin appropriate “JDEP Node Collection Sheet”

1.9 Event Lead Checklist – Configuration Management

JDEP CM required documentation:

- ❑ Have site review the JDEP CM Plan

- ❑ Provide sites with copies of the required documentation (JDEP Node Collection Sheet, System Change Requests (SCRs), etc.) and explain their CM responsibility

1.10 Event Lead Checklist – Test Event Goals

1.10.1 Event objectives:

- ❑ Define Event objectives
- ❑ Map test participants to Event objectives (Define how each test participant is necessary to achieve one or more of the Event Objectives)

1.10.2 Data Collection

- ❑ Identify what data needs to be collected for each objective
- ❑ Identify who is responsible for data collection

1.11 Event Lead Checklist – Roles and Responsibilities

1.11.1 Test Participants:

- ❑ Identify Test Director, by organization and name
- ❑ Identify POC for each participating organization

1.11.2 JITC Role

- ❑ Identify and document JITC/JDEP event roles and responsibilities

STEP 2 – PERFORM CONCEPTUAL ANALYSIS

The goal of Step 2 is to construct a detailed conceptual model and experiment design. The conceptual analysis is driven by, and provides feedback to, the high-level system objectives established in Step 1. The end product of Step 2 will be a detailed description of the model and intended experiments. This conceptual model will provide criteria for selecting reusable components and can be used to derive requirements where existing components must be modified or new components constructed.

2.1 Tools and Techniques

Choose tools and techniques for developing and documentation of the conceptual model.

2.2 Define Precise Metrics

Define precise metrics for evaluating the outcome of an experiment. These metrics should be directed at answering the questions identified in the high-level objectives.

2.3 Federation Output Requirements

Refine federation output requirements to satisfy the data requirements for the established evaluation metrics.

2.4 Define a Conceptual System Model

The conceptual model should include input/output views of model components, specify component interactions, and describe the dynamic behavior of system components. The conceptual model should include entity models, environmental models, and any other dynamic system that is considered relevant to the evaluation metrics. The conceptual model must be directed by the high-level objectives and evaluation metrics.

2.5 Define Experiments

This should establish a set of initial conditions for the model (e.g. initial placement of entities on a simulated battlefield, initial weather conditions, etc.), define values for model parameters, indicate the range of parameters and initial conditions to be tried, and provide a hypothesis concerning the outcome of the experiments in terms of the evaluation metrics.

2.6 Identify Assumptions

Identify, in so far as is possible, assumptions concerning the model and its relationship to the evaluation metrics. Restrictions on valid use of the model should also be identified where possible/appropriate.

2.7 Verify with Federation User

Verify the model, evaluation metrics, and proposed experiments with the federation user.

2.8 Validation and Verification (V&V)

Establish a suitable V&V plan for the model and its simulator, respectively.

2.9 Prepare the Required JDEP CM Documentation

2.9.1 Appropriate pages of the “JDEP Node Collection Sheet.”

2.9.2 Any System Change Requests (SCRs) created.

2.9.3 Other.

2.10 Develop Federation Requirements

2.10.1 Define required behavior for each federation entity.

2.10.2 Define required characteristics of federation events.

2.10.3 Define requirements for live, virtual, and constructive simulations.

2.10.4 Define human or HWIL requirements.

2.10.5 Define federation performance requirements.

2.10.6 Define Time Management requirements.

2.10.7 Define host computer and networking hardware requirements.

2.10.8 Define supporting software requirements.

2.10.9 Define security requirements:

- o Hardware/Software
- o Network
- o Data

2.10.10 Define data output requirements:

- o Collections points
- o Data collected
- o Data analysis requirements
- o Define fidelity Requirements

2.10.11 Verify all requirements are clear, unique, and testable.

2.10.12 Provide sufficient details for each requirement in order to provide implementation level guidance needed to design and develop federation.

2.10.13 Demonstrate traceability between federation requirements and the following:

- o Program objectives
- o Federation objectives
- o Federation scenarios
- o Federation conceptual model

2.10.14 Document all federation requirements.

2.11 Event Lead Checklist – Test Event Goals

2.11.1 Event Objectives

❑ Refine Event Objectives based on Lessons Learned to date (Re-verify that the test participants are contributing to the Event Objectives)

2.11.2 Data Collection

❑ Refine Data Collection Requirements

2.12 Event Lead Checklist - Metrics

2.12.1 Event Objectives

❑ Identify Pass/Fail criteria for of Event Objectives

STEP 3 – DESIGN FEDERATION

The goal of Step 3 is to produce the federation design. The key activities for Step 3 are to 1) select federates, 2) prepare federation design, and 3) prepare plan.

3.1 Select Federates

3.1.1 Define criteria for federate selection.

3.1.2 Determine if an existing, reusable federation meets/partially satisfies the federation requirements.

3.1.3 Identify suitable existing federates.

3.1.3.1 Identify modifications needed for these federates to participate in this event.

3.1.3.2 Identify functionalities required for each federate.

3.1.4 Identify new federates.

3.1.4.1 Identify what needs to be done to bring them into the federation to participate in this event.

3.1.5 Identify functionalities required for each federate.

3.2 Prepare Federation Design

3.2.1 Analyze selected federates. Identify those federates that best provide required functionality and fidelity.

3.2.2 Allocate functionality to selected federates.

3.2.2.1 Determine if federate modifications are necessary and/or if development of a new federate is needed.

3.2.3 Develop design for needed federate modifications.

3.2.4 Develop design for new federates.

3.2.5 Ensure earlier federation decisions do not conflict with selected federates.

3.2.6 Develop design for federation infrastructure.

3.2.7 Develop design of supporting databases.

3.2.8 Estimate federation performance, and determine if actions are necessary to meet performance requirements.

3.2.9 Analyze, and if necessary, refine initial security risk assessment and concept of operations.

3.2.10 Document the federation design.

3.3 Prepare Plan

3.4 Request Authority to Connect (ATC)

3.5 Prepare the Required JDEP CM Documentation

3.5.1 Prepare and schedule the JDEP CCB Briefing

3.5.2 Appropriate pages of the “JDEP Node Collection Sheet”.

3.5.3 Any System Change Requests (SCRs) created.

3.5.4 Other.

STEP 4 – DEVELOP FEDERATION

4.1 Document Federation Requirements

4.2 Develop/Modify FOM to Comply to Requirements

4.3 Establish Federate Agreements

4.4 Implement Modifications to Existing Federates

4.5 Integrate New Federates

4.6 Has the Authority to Connect (ATC) Been Received?

4.7 Prepare the Required JDEP CM Documentation

4.7.1 Receive Event schedule approval from the JDEP CCB

4.7.2 Appropriate pages of the “JDEP Node Collection Sheet”.

4.7.3 Any System Change Requests (SCRs) created.

4.7.4 Other.

STEP 5 – PLAN, INTEGRATE, AND TEST FEDERATION

5.1 Implement Federation According to Implementation Plan

5.2 Integrate Federation

5.3 Test Federation

5.4 Prepare the Required JDEP CM Documentation

5.4.1 Appropriate pages of the “JDEP Node Collection Sheet”.

5.4.2 Any System Change Requests (SCRs) created.

5.4.3 Other.

STEP 6 – EXECUTE FEDERATION AND PREPARE OUTPUTS

6.1 Execute Event

6.2 Prepare Outputs

6.3 Prepare the Required JDEP CM Documentation

6.3.1 Appropriate pages of the “JDEP Node Collection Sheet”.

6.3.2 Any System Change Requests (SCRs) created.

6.3.3 Other.

STEP 7 – ANALYZE DATA AND EVALUATE RESULTS

7.1 Analyze Data

7.2 Evaluate and Provide Feedback to Federation

7.3 Publish Results

7.4 Prepare the Required JDEP CM Documentation

7.4.1 Appropriate pages of the “JDEP Node Collection Sheet”.

7.4.2 Any System Change Requests (SCRs) created.

7.4.3 Other.